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MEREK, BLACKMON & VOORHEES, LLC
673 S. WASHINGTON ST.
ALEXANDRIA, VA 22314

EXAMINER	
CHAN, JASON	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SRINIVASA SESHA SOMA SEKHAR MUPPIDI and
GOPINATH RAMANAN

Appeal 2008-0643
Application 10/071,951
Technology Center 2600

Decided: March 11, 2008

Before ANITA PELLMAN GROSS, MAHSHID D. SAADAT, and JOHN A. JEFFERY, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

1 Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1, 2, 4-16, and 20-54. We have jurisdiction under 35 U.S.C. § 6 (b), and we heard the appeal on February 14, 2008. We affirm-in-part.

STATEMENT OF THE CASE

Appellants invented a system and method that discovers information indicative of the configuration of an optical network. To this end, neighbors of each node are discovered. Using these relationships, a network configuration is determined having a topological map corresponding to the discovered relationships. An alarm signal indicative of a configuration error is generated responsive to detected configuration errors.[1] Claim 1 is illustrative:

> 1. A method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans, the method comprising:
>
> discovering at least one neighboring optical node, each neighboring optical node being coupled by a single optical span having at least one optical fiber;
>
> each node publishing at least one neighboring node to the network; and
>
> each node of said plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes.

The Examiner relies on the following prior art references to show unpatentability:

Elliott	US 6,456,599 B1	Sep. 24, 2002 (filed Feb. 7, 2000)
deVette	US 6,718,141 B1	Apr. 6, 2004 (filed Dec. 23, 1999)

[1] *See generally* Spec. ¶¶ 0006-0008.

1. Claims 1, 2, 4-13, 20-25, 29, 30, 34, 36-43, and 47-50 stand rejected under 35 U.S.C. § 102(e) as being anticipated by deVette.[2]
2. Claims 14-16, 26-28, 31-33, 35, and 44-46 stand rejected under 35 U.S.C. § 103(a) as unpatentable over deVette.
3. Claims 51-54 stand rejected under 35 U.S.C. § 103(a) as unpatentable over deVette and Elliott.

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Briefs and the Answer for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

OPINION

The Anticipation Rejection

Claims 1, 5, 6, 10, and 12[3]

We first consider the Examiner's rejection of claims 1, 2, 4-13, 20-25, 29, 30, 34, 36-43, and 47-50 under 35 U.S.C. § 102(e) as being anticipated by deVette. "Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and

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[2] Although the Examiner includes claims 17-19 in the statement of the rejection in the Grounds of Rejection section of the Answer (Ans. 3), these claims have been cancelled. *See* App. Br. at 4; *see also* App. Br. at 33 (noting cancellation of claims 17-19 in Claims Appendix).

[3] Since Appellants argue the patentability of claims 5 and 6 for the same reasons as claim 1 (App. Br. 14), we consider claims 1, 5, and 6 together as a group (along with dependent claims 10 and 12 which were not separately argued) and select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii).

every element of a claimed invention" as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984); *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983).

The Examiner has indicated how the claimed invention is deemed to be fully met by the disclosure of deVette (Final Rejection 2-9).[4] Regarding representative independent claim 1, Appellants argue that deVette fails to disclose *each node* of the plural optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring nodes as claimed. According to Appellants, the individual nodes in deVette do not map the network, but rather it is the *central network monitor* (CNM) that performs this function. Appellants emphasize that, in deVette, the CNM -- not the nodes -- contains the mapping processors (App. Br. 12-14; Reply Br. 2-3). Appellants add that deVette does not teach two-way communication between nodes which would avoid the necessity of a CNM (Reply Br. 3).

The Examiner responds that neither the CNM nor its mapping processor was relied upon for the disputed limitations of claim 1. Rather, the Examiner emphasizes that it was the particular functionality of each node's inherent processors that was relied upon, namely the configuration signal processors and Optical Supervisory Channel (OSC) processors.

[4] We note that the Examiner's Answer does not expressly state the Examiner's grounds of rejection, but instead refers us to the Final Rejection and an Advisory Action (Ans. 3). Such incorporations by reference, however, are improper under current practice. *See* MPEP § 1207.02 ("An examiner's answer should not refer, either directly or indirectly, to any prior Office action without fully restating the point relied on in the answer.").

According to the Examiner, these processors generate and circulate connectivity reports that reflect a reported topological map of network links corresponding to discovered upstream neighboring nodes. The Examiner notes that these functions performed by the nodes' processors fully meet the disputed limitations of claim 1 (Ans. 3-7).

Since the Examiner's interpretation of deVette is undisputed with respect to the other recited limitations of independent claim 1, the issue before us, then, is whether the processing functionality of each node in deVette determines a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes, as claimed. For the following reasons, we find that it does.

DeVette discloses an optical network that maintains network connectivity data and identifies and isolates network faults. To this end, a signal processor at each node 101-122 (1) retrieves upstream connectivity data from an out-of-band signal, (2) updates the data, and (3) returns the data to the out-of-band signal for use by downstream elements. A CNM 123 periodically requests updates from each node of its connectivity data. The CNM uses this data, along with fault isolation alarms, to direct its operations, analysis, and maintenance functions (deVette, Abstract; Fig. 1).

A typical node 230 is shown in Figure 2A. As shown in that figure, the node comprises, among other things, an OSC processing subsystem 234 and a payload processor 233 (deVette, col. 8, ll. 4-13; Figs. 2A, 2c). As shown in Figure 2c, the OSC processing subsystem contains an OSC processor 280 which performs various message processing functions (deVette, col. 11, ll. 27-40; col. 12, ll. 49-59; Fig. 2c).

A key aspect of deVette is the processing of node-to-node messages 400. These messages are sent from one node to the immediately downstream node, and effectively act like a token passed along the network (deVette, col. 14, ll. 16-28). Upon receipt, the node's OSC processor 280 (1) processes the upstream node-to-node message, and (2) generates the outgoing downstream node-to-node message (deVette, col. 16, ll. 44-50; col. 18, ll. 50-63; Figs. 5A-C).

In addition, node connectivity data messages can pass between the CNM 123 and the individual nodes 101-122. After the CNM issues a connectivity request message 600, it is sent to each network node 101-122 in succession. As each node encounters the connectivity request message, it generates a node connectivity report message 610. Each node's generated connectivity report is based in part on data received from an upstream node (deVette, col. 18, l. 64 - col. 19, l. 64; Fig. 6B).

Ultimately, the CNM receives each nodes' connectivity reports to generate a current map of the topology and connectivity of the network (deVette, col. 20, ll. 54-59). Each node's connectivity reports, however, are theoretical: they merely reflect only what *topology* and connectivity data has been reported to a given node by its upstream nodes (deVette, col. 22, ll. 39-54; emphasis added).

Based on this functionality, we agree with the Examiner that the ability of each node to generate a connectivity report -- a report that reflects *topology* and connectivity data of a node at least with respect to its upstream nodes -- fully meets the disputed limitation of independent claim 1. While this topological and connectivity data does not map the entire network (a function performed by the CNM), claim 1 does not require mapping the

entire network as the Examiner indicates (Ans. 6). Consequently, Appellants' arguments pertaining to the mapping function of the CNM are simply not germane to the basis for the Examiner's rejection which relied upon the processing capability of each node for the recited mapping function -- not the CNM. In this regard, we agree with the Examiner that each node's connectivity reports generated by the node's processing functions, in effect, provide a topological map of network links corresponding to discovered upstream optical nodes.

That messages in deVette are transmitted from node-to-node in one direction does not change our conclusion. Upstream nodes fully meet "neighboring" nodes giving the term its broadest reasonable interpretation.[5] Claim 1 merely recites that *at least one* neighboring optical node is discovered, and that each node determines a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes (i.e., at least one neighboring node). Therefore, basing a given node's connectivity report (and associated map of network

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[5] In interpreting the term "neighboring," we note that Appellants' Specification indicates that "[e]ach individual optical node 120 is coupled to *adjacent (neighboring)* nodes by an optical span 130…" (Spec. ¶ 0019; emphasis added). This statement, in our view, is tantamount to an implicit definition of "neighboring" as "adjacent." *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) ("Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.") (Citations and internal quotation marks omitted). This implicit definition in the Specification reasonably comports with the Examiner's interpretation of a "neighboring node" as "a node that is adjacent to or located near another node" (Ans. 10-11; internal quotation marks omitted) -- an interpretation that is undisputed.

links) solely on the topology and connectivity data from upstream nodes fully meets the disputed limitation of claim 1.

For the foregoing reasons, and since we find deVette fully meets all other recited limitations of independent claim 1, we will sustain the Examiner's anticipation rejection of that claim as well as claims 5, 6, 10, and 12 which fall with claim 1.

Claim 2

We will also sustain the Examiner's rejection of claim 2 which calls for, in pertinent part, generating an alarm signal responsive to detecting an error between the network configuration and a planned configuration. We agree with the Examiner (Ans. 14-15 referring to Ans. 7-8) that the cited passages fully meet the disputed limitation. At the outset, we note that the claim does not require each node to generate the recited alarm signal.

Nevertheless, as the Examiner indicates, deVette expressly teaches comparing the *theoretical* topology and connectivity data (i.e., a "planned configuration") with the *actual* connectivity of the network to identify and isolate faults in nodes and segments (deVette, col. 22, ll. 55-65). In one embodiment, the OSC processor 931 reports an error message as a conventional alarm raised by the node and directed to the CNM. The CNM then indicates an alarm condition (deVette, col. 25, ll. 10-27). This functionality fully meets claim 2.

Furthermore, deVette teaches that at least one node transmits an alarm message denoting an inconsistency between received identification data and configuration data received from an upstream segment (deVette, col. 28, ll. 15-27 (text of claim 23); col. 27, ll. 40-61 (text of claim 17)). Such an

inconsistency between data that initiates the alarm message from the node(s), in our view, reasonably meets the recited error.

Lastly, we agree with the Examiner (Ans. 7-8) that the claim does not preclude the fault detection functions of the alignment audit performed by the CNM -- a process that inherently detects error between a network configuration and a planned configuration and processes such discrepancies accordingly (deVette, col. 20, ll. 54-67). In our view, the very act of identifying and processing detected discrepancies in this manner fully meets generating an "alarm signal."

For the foregoing reasons, we will sustain the Examiner's rejection of claim 2.

Claim 4

We also will sustain the Examiner's rejection of claim 4 which calls for, in pertinent part, isolating the location of a configuration error. Appellants have not persuasively rebutted the Examiner's position (Ans. 15) based on deVette's fault processor and fault isolation processors which identify and isolate faults discussed in column 3, lines 32-40. We add that the alarm functionality of the CNM noted above in connection with claim 2 is likewise implemented via fault isolation processors (deVette, col. 25, ll. 28-35). We therefore find the Examiner's position reasonable and will sustain the rejection of claim 4.

Claim 7

We will also sustain claim 7 which calls for, in pertinent part, each node forming an information model of the optical network. At the outset,

we note that Appellants' contention (App. Br. 14-15) that the cited passage of deVette does not disclose each node forming an information model of the *entire* network[6] is not commensurate with the scope of the claim. Claim 7 does not require modelling the entire network.

In any event, we agree with the Examiner (Ans. 8) that each node's ability to form a topological map with respect to the discovered upstream neighboring nodes fully meets forming an "informational model of the optical network" at least with respect to the node's upstream connectivity and topology. Claim 7 is therefore fully met and the rejection sustained.

Claims 8, 9, and 21

We will also sustain the Examiner's rejection of claims 8 and 21 which call for each node to generate an alarm signal responsive to a detected error. We sustain the rejection essentially for the same reasons as we indicated previously in connection with claim 2, and we therefore incorporate that discussion by reference. Since claim 9 depends from claim 8 and was not separately argued, it falls with claim 8.

Claim 11

Regarding claim 11, we agree with the Examiner (Ans. 18) that deVette's transmission of an alarm message and processing discrepancies reasonably constitutes issuing an error correction command. First, deVette indicates that the CNM uses connectivity data and fault isolation alarms to *direct* its operations, analysis, and *maintenance* functions (deVette, Abstract;

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[6] The scope and breadth of the term "optical network" does not preclude a network consisting of a given node and its discovered upstream neighboring nodes as in deVette.

emphasis added). Directing maintenance functions, in our view, would at least implicitly involve issuing error correction commands.

In any event, deVette notes that as a result of comparing the theoretical topology and connectivity data with the actual connectivity of the network, faults are *identified* and *isolated* (deVette, col. 22, ll. 55-65). Even if *isolating* a fault does not result in complete *repair* of the fault (i.e., error correction), isolating a fault is nonetheless an initial step towards repairing the fault. Therefore, the very act of isolating a given fault is, in effect, an "error correction command" for repairing that fault.[7]

Since we find deVette discloses all limitations of claim 11, the Examiner's rejection of that claim is therefore sustained.

Claims 13 and 25

We will also sustain the Examiner's rejection of claims 13 and 25 essentially for the reasons indicated by the Examiner (Ans. 18-20). Apart from merely asserting that the relied-upon passages from deVette do not disclose issuing an alarm signal responsive to determining incorrectly connected optical fibers (App. Br. 15), Appellants do not specifically address the Examiner's specific position articulated in the Answer or explain why this position is deficient. Merely pointing out what a claim recites is not considered an argument for separate patentability of the claim. 37 C.F.R. § 41.37(c)(1)(vii). In any event, such conclusory statements fall well short of rebutting the Examiner's prima facie case of anticipation -- a

[7] *See, e.g.*, deVette, at col. 2, ll. 16-17 ("Fault isolation *and repair* necessarily requires a detailed and accurate record of the network topology….") (emphasis added).

position that we find reasonable. Accordingly, the Examiner's rejection is sustained.

Claims 20 and 22-24

We will also sustain the Examiner's rejection of claim 20. Regarding Appellants' argument regarding the recited alarm signal (App. Br. 16-17), our previous discussion regarding deVette's generation of an alarm signal responsive to detecting an error between the network configuration and a planned configuration in connection with claim 2 applies equally here, and we incorporate that discussion by reference.

In addition, we find that each node's ability to form a topological map with respect to the discovered upstream neighboring nodes in deVette effectively forms an "information model" and determines a network configuration of an optical network[8] consistent with this model, as claimed. Our previous discussion in connection with claim 7 applies equally here, and we incorporate that discussion by reference.

For the foregoing reasons, we will sustain the Examiner's rejection of claim 20. Regarding claims 22-24, since Appellants have not separately argued their patentability apart from their dependence from claim 20 (App. Br. 17), these claims fall with claim 20 and their rejection is likewise sustained. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Claims 29-35

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[8] The scope and breadth of the term "optical network" does not preclude a network consisting of a given node and its discovered upstream neighboring nodes as in deVette.

Regarding independent claim 29, we find that each node in deVette receives and publishes the identities of at least its upstream nodes (i.e., its neighboring nodes). The node-to-node message 400 contains a number of fields 401-407 each of which can contain the identity of one of the nodes 101-122 in the network. Specifically, the first field 401 contains the identity of the reporting element, and the remaining fields 402-407 contain the identity of the node that is the source of the modulating payload signal (deVette, col. 14, ll. 29-41; Table 1). Significantly, these identities contained in the fields of the node-to-node message are reported by *each node* (deVette, col. 14, ll. 46-49). Therefore, each node would report (i.e., publish) the identity of its upstream nodes (i.e., its neighboring nodes) as well as its own identity and configuration data.

Furthermore, we find persuasive the Examiner's reference to Figure 2A (Ans. 9) which clearly shows multiple nodes 293, 294 upstream from node 230 as well as multiple nodes 295, 296 downstream from node 230. This teaching further reinforces the conclusion that the identity of multiple upstream nodes is published along with the node's own identity and configuration data.[9]

Nevertheless, we are persuaded by Appellants' argument regarding deVette's alleged failure to disclose *exchanging* information between neighboring nodes (Reply Br. 4). Simply put, exchanging information requires *reciprocation* between neighboring nodes -- a process that simply does not occur when information flows in only one direction as in deVette.

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[9] *See, e.g.,* deVette, at col. 22, ll. 42-45 (noting that each node's ability to generate a connectivity report 610 reflects only the topology and connectivity data reported to that node by its upstream nodes).

For the foregoing reasons, we will not sustain the Examiner's rejection of independent claim 29 or claims 30-35 for similar reasons.

Claims 36-39

We will also not sustain the Examiner's rejection of independent claim 36. As Appellants indicate (App. Br. 19; Reply Br. 5), the claim is directed to a *single optical node* that contains the recited features. The Examiner's rejection relies on various aspects of the optical network in deVette as well as the CNM 123 for allegedly disclosing the recited features of the node (Final Rejection 7). The CNM, however, is a distinct entity that is entirely independent of the optical nodes 101-122. *See, e.g.*, Figure 1. The Examiner's contention (Ans. 10) that the direct connection between the CNM and node 101 and their interoperability somehow transforms these distinct entities into an integral component is unavailing.

For the foregoing reasons, we will not sustain the Examiner's rejection of independent claim 36 or dependent claims 37-39 for similar reasons.[10]

Claims 40 and 42

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[10] Nevertheless, we note the Examiner's analysis in connection with claim 47 (Ans. 21) that indicates the node 230 in Figure 2A comprises an "optical transport complex" in view of the incoming and outgoing optical signals carried by the fibers and signal segments (237, 238, 248, 250, 254, and 255) as shown in Figure 2A. Second, the Examiner indicates in connection with claim 47 (Ans. 21) that each node's OSC and payload processors 233, 234 correspond to an "administrative complex" in view of its optical signal and message handling capability as well as its memory for storing node-to-node messages. This analysis, however, is not before us in connection with independent claim 36.

We will, however, sustain the Examiner's rejection of claim 40. First, our discussion in connection with claim 29 with respect to the node's identification and publishing capability applies equally here, and we incorporate that discussion by reference.[11] Further, nothing in the claim requires that the "neighbors" recited in the claim in connection with a node's identification and publication functions are the *same* neighbors. That is, the claim does not preclude each node in deVette (1) identifying itself to its *downstream* neighbors, and (2) publishing the identity of its *upstream* neighbors.

The limitation calling for the node(s) forming a model from published information, however, presents us with a closer question. While we find the Examiner's reliance on the CNM as performing this function (Ans. 11) problematic, we nonetheless find that the functionality of the nodes in deVette reasonably meets the disputed limitation. Significantly, each node's ability to generate a connectivity report 610 is based, at least in part, on topology and connectivity data that has been reported to the node by upstream nodes (deVette, col. 22, ll. 42-45). Thus, for similar reasons as we indicated above in connection with claims 20 and 22-24, we find that the node's connectivity report is, in effect, a "model" of the network configuration pertaining to that node that is based on information received from its upstream nodes (i.e., published neighbor information).

For the foregoing reasons, we find deVette anticipates claim 40. Accordingly, we will sustain the Examiner's rejection of that claim.

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[11] *See* p. 13, *supra*, of this opinion.

Regarding claim 42, since Appellants have not separately argued its patentability apart from its dependence from claim 40 (App. Br. 22), claim 42 falls with claim 40, and its rejection is likewise sustained. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Claims 41 and 43

We will also sustain the Examiner's rejection of claims 41 and 43 which call for generating an alarm signal responsive to the network configuration being different from a provisioned network configuration. We sustain the rejection essentially for the same reasons as we indicated previously in connection with claim 2, and therefore incorporate that discussion by reference.

Claim 47

We will sustain the Examiner's rejection of claim 47 which calls for each node to include (1) an optical transport complex, and (2) an administrative complex. We agree with the Examiner (Ans. 21) that the functionality with respect to the incoming and outgoing optical signals carried by the fibers and signal segments (237, 238, 248, 250, 254, and 255) connected to the node 230 in Figure 2A fully meets the recited "optical transport complex."

We also agree with the Examiner (Ans. 21) that each node's OSC and payload processors 233, 234 reasonably meet the recited "administrative complex" essentially for the reasons indicated by the Examiner.

For the foregoing reasons, we will sustain the Examiner's rejection of claim 47.

Claims 48-50

We will also sustain the Examiner's rejection of claims 48-50 which call for, in pertinent part, issuing an error correction command responsive to determining a network configuration error. Our previous discussion in connection with claim 11 applies equally here, and we incorporate that discussion by reference.

For the foregoing reasons, we will sustain the Examiner's rejection of claims 48-50.

The Obviousness Rejections

Claims 14-16, 26-28, 31-33 35, and 44-46

We now consider the Examiner's rejection of claims 14-16, 26-28, 31-33, 35, and 44-46 under 35 U.S.C. § 103(a) as unpatentable over deVette. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

Discussing the question of obviousness of a patent that claims a combination of known elements, *KSR Int'l v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), explains:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary

> skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [*v. AG Pro, Inc.,* 425 U.S. 273 (1976)] and *Anderson's-Black Rock* [*, Inc. v. Pavement Salvage Co*., 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR, 127 S. Ct. at 1740. If the claimed subject matter cannot be fairly characterized as involving the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement, a holding of obviousness can be based on a showing that "there was an apparent reason to combine the known elements in the fashion claimed." *Id*. at 1741. Such a showing requires "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id*. (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

If the Examiner's burden is met, the burden then shifts to the Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

The Examiner's rejection finds that deVette teaches every claimed feature except for the error to be of an incompatible node type, setting, or parameter. The Examiner, however, notes that such errors are well known in

the art and concludes that issuing alarms based on such errors would have been obvious to ordinarily skilled artisans (Final Rejection 10).

Appellants do not dispute the Examiner's use of Official Notice in the rejection, but rather essentially reiterate their arguments with respect to claim 2, namely that deVette does not describe generating an alarm signal responsive to detecting an error between a network configuration and a planned configuration (App. Br. 24-25; Reply Br. 3-4). Appellants make commensurate arguments with respect to claims 26-28, 31-33, and 44-46 (App. Br. 25-27).

We are not persuaded by these arguments, however, for the reasons previously discussed.[12] Since Appellants have not persuasively rebutted the Examiner's prima facie case of obviousness of claims 14-16, 26-28, 31-33, 35, and 44-46 based on deVette, we will sustain the Examiner's rejection of those claims.

Claims 51-53

We now consider the Examiner's rejection of claims 51-53 under 35 U.S.C. § 103(a) as unpatentable over deVette and Elliott. The Examiner's rejection finds that deVette teaches every claimed feature except for the neighbor discovery means to transmit signals in opposite directions to discover the neighboring nodes. The Examiner, however, notes that bidirectional communication is well known in the telecommunications industry as evidenced by deVette, especially for long-haul networks. The Examiner further cites Elliott as teaching a bidirectional neighbor discovery means and concludes that implementing such a bidirectional neighbor

[12] *See* p. 8-9, *supra,* of this opinion.

discovery feature in deVette would have therefore been obvious to ordinarily skilled artisans (Final Rejection 11-12; Ans. 11-13).

Appellants argue that not only is there no teaching of the desirability of combining deVette with Elliott, deVette actually teaches away from the combination in view of the signal travelling in one direction (App. Br. 28-29; Reply Br. 6).

At the outset, we note that Appellants do not dispute the Examiner's findings with respect to deVette's teachings of the known use of bi-directional optical communication for long-haul networks (deVette, col. 1, ll. 37-40; col. 6, ll. 58-63) (noting that different bands of wavelengths are used for respective transmission directions). Nor do Appellants dispute the Examiner's findings with respect to Elliott. The issue before us, then, is notwithstanding deVette's teaching of known bi-directional communication techniques, whether deVette nonetheless teaches away from combining the bi-directional neighbor discovery capability of Elliott with deVette. For the reasons that follow, we find that it does not, and the combination is reasonable.

While deVette's optical signal flow is in one direction, we nonetheless agree with the Examiner (Ans. 11-13) that deVette's teachings of using bi-directional communication provide ample suggestion to implement such a capability, such as that disclosed by Elliott, for long-haul applications. Furthermore, deVette notes that the network shown in Figure 1 is a metropolitan network. Although not shown in Figure 1, deVette notes that the metropolitan network typically comprises a *complementary network* with corresponding nodes and commensurate processing capability including OSC processing. Significantly, this network that is complementary to that

shown in Figure 1 comprises nodes, segments, LTEs, and signal lines, but light propagates in the *opposite direction* (deVette, col. 6, l. 63 - col. 7, l. 4).

These teachings, in our view, would hardly dissuade the skilled artisan from using bi-directional techniques such as those disclosed by Elliott in the system of deVette. Clearly, deVette contemplates bi-directional communication in conjunction with the network shown in Figure 1. Accordingly, we find the Examiner's combination of the teachings of Elliott with deVette with respect to the recited bi-directional capability reasonable. Moreover, we find that implementing bi-directional neighbor discovery capability in deVette is tantamount to the predictable use of prior art elements according to their established functions -- an obvious improvement. *See KSR*, 127 S. Ct. at 1740.

For the foregoing reasons, we will sustain the Examiner's rejection of claim 51. Regarding claims 52 and 53, since Appellants have not separately argued their patentability apart from their dependence from claim 51 (App. Br. 29), these claims fall with claim 51 and their rejection is likewise sustained. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Claim 54

We will also sustain the Examiner's rejection of claim 54 essentially for the reasons indicated by the Examiner (Ans. 13-14). Apart from a mere conclusory assertion that the cited references do not teach determining a network configuration having a topological map of network links corresponding to nodal relationship information (App. Br. 29), Appellants do not specifically point out the purported deficiencies in the Examiner's position. Nor do Appellants explain why the cited passages of deVette do

not teach or suggest the disputed limitation. Such arguments fall well short of persuasively rebutting the Examiner's prima facie case of obviousness based on the collective teachings of deVette and Elliott -- a position that we find reasonable. The rejection is therefore sustained.

DECISION

We have sustained the Examiner's rejections with respect to claims 1, 2, 4-16, 20-28, and 40-54. We have not, however, sustained the Examiner's rejection of claims 29-39. Therefore, the Examiner's decision rejecting claims 1, 2, 4-16, and 20-54 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

gvw

MEREK, BLACKMON & VOORHEES, LLC
643 S. WASHINGTON STREET
ALEXANDRIA, VA 222314